



**TELEDYNE INSTRUMENTS**  
*Advanced Pollution Instrumentation*  
A Teledyne Technologies Company

MODEL **400E**

# UV Absorption O<sub>3</sub> Analyzer



EPA APPROVAL EQOA-0992-087  
MCERTS certified Sira MC050070/00

The Model 400E UV Absorption Ozone Analyzer is a microprocessor-controlled analyzer that uses a system based on the Beer-Lambert law for measuring low ranges of ozone in ambient air.

A 254 nm UV light signal is passed through the sample cell where it is absorbed in proportion to the amount of ozone present. Every three seconds, a switching valve alternates measurement between the sample stream and a sample that has been scrubbed of ozone. The result is a true, stable ozone measurement.

Multi-tasking software gives real time indication of a large number of operational parameters, and provides automatic warnings if diagnostic limits are exceeded. Built-in data acquisition capability, using the analyzer's internal memory, allows the logging of multiple parameters including averaged or instantaneous concentration values, calibration data, and operating parameters such as pressure and flow rate.

Stored data are easily retrieved through the serial port or optional Ethernet port via our APIcom software or from the front panel, allowing operators to perform predictive diagnostics and enhanced data analysis by tracking parameter trends. Multiple averaging periods of one minute to 365 days are available for over a period of one year.

- ▶▶ **Ranges, 0-100 ppb to 0-10 ppm, user selectable**
- ▶▶ **Single pass ultraviolet absorption**
- ▶▶ **Microprocessor controlled for versatility**
- ▶▶ **Multi-tasking software allows viewing of test variables during operation**
- ▶▶ **Continuous self checking with alarms**
- ▶▶ **Dual bi-directional RS-232 ports for remote operation (optional RS-485 or Ethernet)**
- ▶▶ **Digital status outputs provide instrument operating condition**
- ▶▶ **Adaptive signal filtering optimizes response time**
- ▶▶ **Optional Internal Zero/Span check and dual span points**
- ▶▶ **Temperature & Pressure compensation**
- ▶▶ **Internal data logging with 1 min to 365 day multiple averages**
- ▶▶ **APIcom remote operation software**

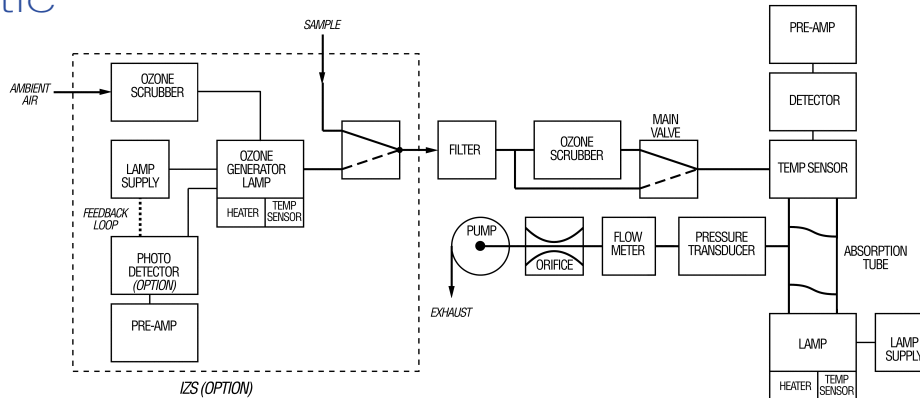


# MODEL 400E UV Absorption O<sub>3</sub> Analyzer

## Specifications

Ranges:	0-100 ppb to 0-10 ppm, user selectable. Dual ranges and auto-ranging supported	Operating Temperature Range:	5 - 40°C (with EPA Equivalency)
Units:	ppb, ppm, µg/m <sup>3</sup> , mg/m <sup>3</sup>	Dimensions (HxWxD):	7" (178 mm) x 17" (432 mm) x 23.5" (597 mm)
Zero Noise:	< 0.3 ppb (RMS)	Weight:	28 lbs (12.7 kg); 30.6 lbs (13.8kg) with IZS
Span Noise:	< 0.5% of reading above 100 ppb (RMS)	Power:	100V - 120V, 220V - 240V, 50/60 Hz, 250W
Lower Detectable Limit (LDL):	< 0.6 ppb (RMS)	Analog Outputs:	10V, 5V, 1V, 100mV, selectable
Zero Drift:	< 1.0 ppb/24 hours, < 1.0 ppb/7 days	Recorder Offset:	±10%
Span Drift:	< 1% of reading/7 days	Serial Outputs:	Serial Port 1: RS-232 (DB-9M) Serial Port 2: standard RS-232 or optional RS-485 (DB-9F), Ethernet
Lag Time:	< 10 seconds	Status (Digital):	8 outputs, 6 inputs (opto-isolated)
Rise and Fall Time:	< 20 seconds to 95%	Current Output:	Optional 4-20mA, select up to three channels
Linearity:	1% of full scale	Approvals:	USEPA EQQA-0992-087 MCERTS certified Sira MC050070/00
IZS Specifications (with optional reference feedback):		NOTE: The values expressed above are in accordance with EPA specifications. All error specifications are based on constant conditions.	
Flow Rate	800 cm <sup>3</sup> /min		
Maximum Concentration	1.0 ppm		
Minimum Concentration	0.050 ppm		
Resolution	0.5 ppb		
Repeatability (7 days)	1% of reading		
Initial accuracy	±5% of target		
Sample Flow Rate:	800 cm <sup>3</sup> /min ±10%		

## Schematic



## How to Order

### Model 400E UV Absorption O<sub>3</sub> Analyzer includes:

- Selectable voltage (specify below)
- Internal pump
- Auto ranging and dual ranges
- 47mm diameter particulate filter
- 8 isolated digital status outputs
- Dual bi-directional RS-232
- APIcom remote control software

### Specify input AC voltage & frequency:

- 100V - 115V    50Hz  
 220V - 240V    60Hz

### Specify output DC voltage:

- 10V    5V    1V    0.1V

### Optional Equipment:

- Rack mount brackets (19") with chassis slides
- Rack mount brackets only
- 4-20mA output (specify up to three channels)
- Multi-drop serial interface
- Ethernet port includes 7 ft. CAT-5 cable (disables one serial port)

### Calibration Options:

- Valves for selection of customer-supplied zero and span gas
- Internal zero air and span source for calibration check
- Reference adjustment feedback control IZS ozone generator

### Accessories:

- RS-232 Cable
- Expendables Kit
- Spare Parts Kit

Specifications subject to change without notice. M400E/01.06



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A Teledyne Technologies Company

9480 Carroll Park Drive ■ San Diego, CA 92121-5201

Ph. 858-657-9800 Fax 858-657-9816

Email [api-sales@teledyne.com](mailto:api-sales@teledyne.com)

For more information about the Teledyne API family of monitoring instrumentation products, call us or visit our website at

[www.teledyne-api.com](http://www.teledyne-api.com)

